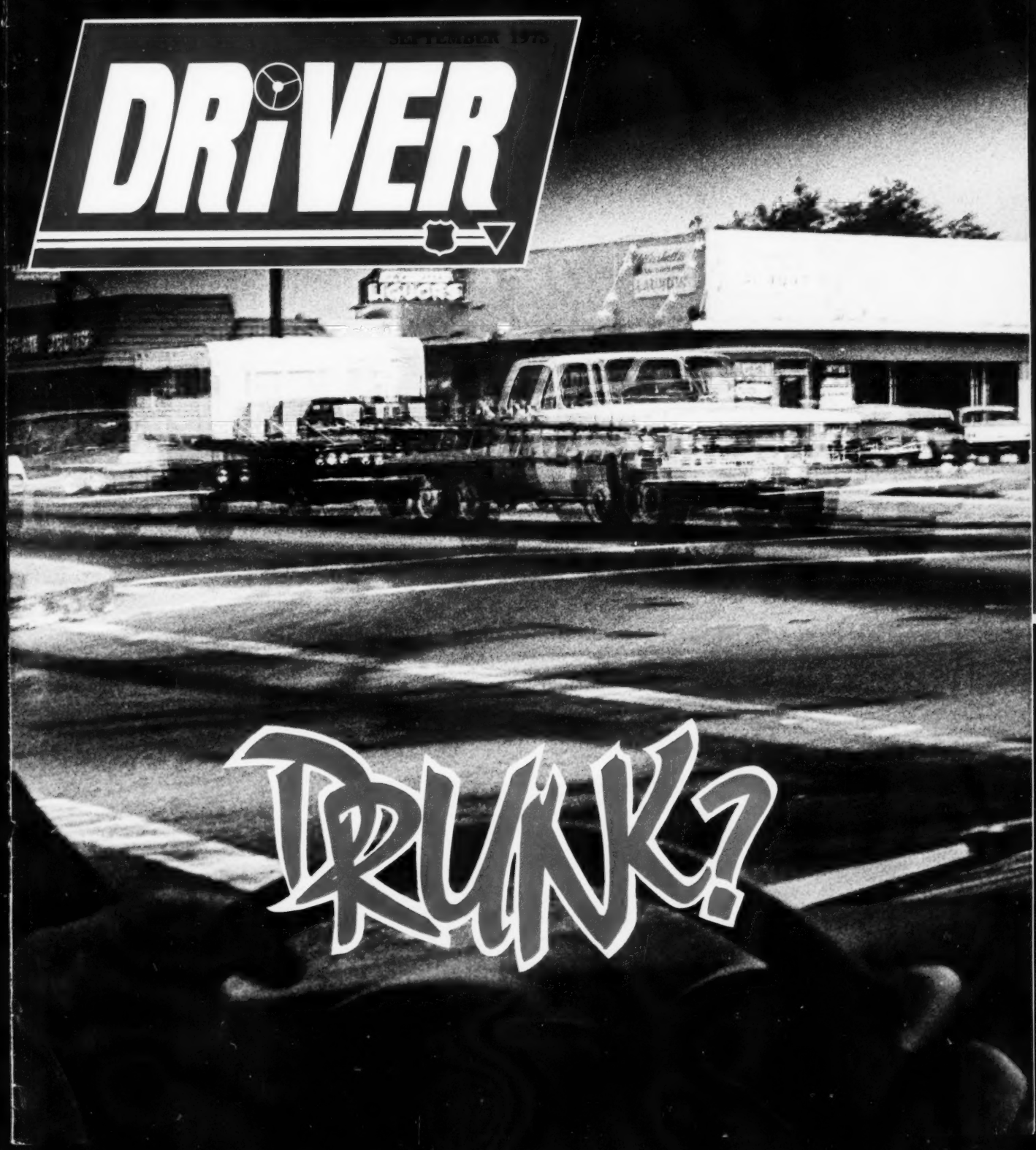
★19 NEW CARS 74★

DOUBLE-CROSSED at the CROSSING ▪ OPINIONS ▪ MISS DRIVER

SEPTEMBER 1975

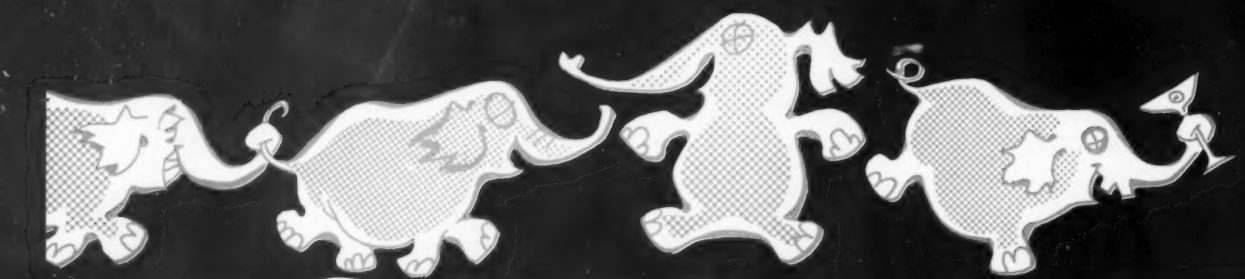
DRIVER



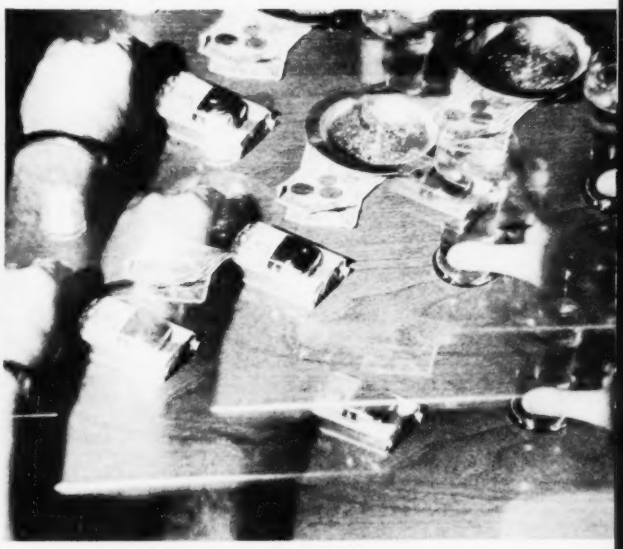
DRIVER

Whatisit? A motorcycle, a flying saucer, a couple of cars? The drunk driver can't tell—nor can he avoid it, whatever it might be.

A new approach in the battle against our foremost driving safety problem



ALCOHOL, DRUG



(above, left, center)
Progressive drunkenness drastically affects the drinker's vision. From perfectly clear sight, he progresses to the point where his vision can no longer stand the glare.

(above, right)
Double, even triple-vision, is not uncommon when alcohol affects the brain's optical center. Driving in this condition is clearly (?) an unsafe act.

S, and DRIVING

Drunk drivers are responsible for a major portion of the 56,000 people killed each year on the highway, and they are also responsible for a great percentage of the one million who are injured. This grim, number one fact of highway survival has prompted the federal government to move into the picture with a dynamic new approach called the Alcohol Safety Action Program (ASAP). This program could save your life.

HOW ASAP WORKS

ASAP's prime target is the problem drinker—the guy who cannot or will not control his alcohol intake. He is the fellow most responsible for the massive highway death toll, and he is also responsible for more than one-half of the multiple-vehicle collisions each year. To bring it home, *one out of every 50 drivers you meet on the highway is drunk.*

ASAP regards the heavily drinking driver as a sick man—suffering from alcoholism, and says he needs medical and psychiatric treatment, not necessarily a mandatory jail sentence.

Law enforcement people know that throwing the book at the drunk driver accomplishes little. Records show that 60 percent of these people continue to drive, even after their licenses have been suspended or revoked. So ASAP is trying a different approach, with three major aims: (1) identify the problem drinkers; (2) devise medical, social, and legal solutions to their drinking problems; and, (3) do something about reducing their chances of driving after they have been drinking.

The suspect's past driving and criminal records (if any) are reviewed, and a team of doctors, including psychiatrists, determine whether he is a problem drinker. If they decide "yes," he faces

continued

DRIVER

THE TRAFFIC SAFETY MAGAZINE FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE

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Tire Special

THE EDITOR SPEAKS

DOUBLE CLUTCH

FEMININE LOGIC?

I recently returned from a trip to learn that our car had conked out and had to be pushed to a service station. Naturally, I had some questions for the car's driver, my wife. They went something like this:

Q. What is wrong with the car?

A. *The service station man said it doesn't have any compression, and he had to replace a radiator hose.*

Q. What happened to cause the engine to lose compression?

A. *He said he thought the valves might be burned up, and the rings ruined.*

Q. Oh, no! How did that happen? Didn't you notice something was wrong while you were driving?

A. *Well, I did hear a popping and crackling noise under the hood, and there was steam coming out of the front of the car.*

Q. What did you do when you noticed all this?

A. *Well, I was driving on the freeway and didn't want to have to stop. So, I drove faster so I could get off the freeway before the car quit.*

What followed then were my muttered expletives and silent prayers for patience and control. Visions of repair bills danced in my head.

Anyway, I thought this story might be useful to you readers. Should you have a wife, or friend, who doesn't know he should stop, or what else to do if car trouble occurs, you might want to tell him (or her). I wish I had. It would have meant paying $3 for a new radiator hose, instead of $550 for a rebuilt engine. ●

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the maximum fine and jail sentence. The sentence may be suspended, in which case he is placed on five years' probation. So, you can see from this flexible approach that ASAP is *not* determined to throw every problem drinker into jail as soon as he is caught.

There are 35 ASAP areas now set up in the U.S. and Puerto Rico, with more on the way. And they work. In 1971 there were only 8 ASAP units going, but yearend figures showed an 8.5 percent *drop* in traffic deaths in their areas, compared to a nationwide *increase* of 1.5 percent in non-ASAP areas.

So, ASAP does work and it doesn't use the old-fashioned "get tough" line. And while it is mainly concerned with the heavily drinking driver, it also touches base with the so-called "social" drinker who has taken a couple too many drinks and is involved in an accident.

A suspected drunk driver is checked out by a California highway patrolman with a few simple balance and coordination tests.

DRINKING AND YOUR "BAC"

"Social" drinking can wipe you out pretty fast. This is especially true if you don't have a realistic concept of your capacity, or don't know why you've got to be careful.

Tests show that if you weigh between 100 and 140 pounds, and drink three martinis in an hour, your blood alcohol concentration (BAC) will zoom to the almost unbelievable level of 0.22 percent. A BAC of 0.10 percent is legal presumption of drunkenness in 38 states, so you can see where the martini drinker stands or, more probably, sits.

In this weight range, even three beers in one hour will boost your BAC over the 0.05 percent level. This is the danger line where most doctors agree that physical and mental impairment begins.

If you weigh 180 pounds, those 3 martinis will hike your BAC to between 0.10 and 0.15 percent, which is bad news in any U.S. court.

WHO'S DRUNK, ME?

Lawmen have been handicapped for years with the problem of trying to determine just when a driver is legally drunk. Tests such as walking a straight line do not hold water in court. As a result, many drunk drivers have escaped the consequences of their actions.

Today, however, there are well-proven, and strictly legal tests that can determine drunkenness. They operate chemically, and are triggered by the alcohol in the breath or the blood. Their results are final, if properly administered, and are accepted in court.

The two most common tests are the blood analysis and the Breathalyzer. The blood test consists of drawing a small amount of blood and chemically analyzing it for the BAC. In the Breathalyzer test, the suspect breathes into a device which chemically and electronically records the percentage of alcohol in his breath. Nothing the suspect does beforehand (such as eating spices or onions, or drinking coffee) can affect the results.

A BAC of 0.10 percent (one drop of alcohol to every 1,000 drops of blood) is a legal presumption of drunkenness in the 38 states where these tests are administered. Two other states, Utah and Idaho, require a BAC of only 0.05 percent for a legal presumption of drunkenness. The number of states using these tests is growing, and soon all 50 states will use them.

IMPLIED CONSENT LAW

There is a lot of discussion about the "implied consent" law, and maybe you've been wondering just what it is all about. Simply stated, this law indicates that any person who is issued a driver's license has automatically given (implied) his consent to a sobriety test, should the need ever arise. All states now have "implied consent" laws in their statute books. Refusal to submit to the test results in driver's license suspension for a specified period of time, sometimes up to six months.

This law gives enforcement officials an immediate and legal course of action to get the drunk driver off the road. It provides real protection for all motorists.

ALCOHOL'S EFFECTS

Alcohol is medically classified as a drug. It depresses, slows down, and dulls your reflexes. In combination with *other* drugs, it can go a long way toward wiping you out.

So, even though you may feel all charged up and rarin' to go after a couple of drinks, the exact opposite is true. In addition to slowing down your reaction times, alcohol affects your hearing and can also prevent you from recognizing a potentially dangerous driving situation until it is too late.

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ALCOHOL, DRUGS, AND DRIVING

Another little-known side effect of alcohol is called "positional nystagmus." In layman's language, this means the rapid and involuntary movement of the eyes, and the resulting dizziness. This impairment can keep recurring long after you have sobered up and there is no more alcohol in your system. Similar delayed reactions are also experienced by drug users.

"Glued blood," is another weird side effect of drinking.* A research team at a leading medical university has come up with some startling information on this subject. They say that alcohol forms an adhesive substance in the blood that seals off the blood cells from their oxygen supply. These cells then die, which affects your brain, heart, nerves, and liver. This has a premature "ageing" affect on your body; in other words, every drink you take makes you just a little bit older. There is no "road back" from this body damage, and the more you drink, the worse it becomes.

Even one drink, the research team says, can produce this glueing effect in your blood. And, if you pursue your drinking over a long enough time, you can literally drink yourself into an early grave.

THE HANGOVER

A person who has suffered through a "morning after" knows only too well the outward effects of alcohol in his body. What he probably doesn't know, however, is the fact that his body is still fighting to rid itself of the alcohol he drank the night before. It is this long struggle by your body that brings on the hangover.

No matter what you do, or take, your body cannot rid itself of alcohol faster than .015 percent, per hour. A small amount of alcohol is eliminated in the urine and a small amount is expelled by breathing, but your liver is what gets rid of most of the alcohol; and alcohol eventually destroys the liver's ability to function, resulting in a disease called cirrhosis of the liver—a common ailment among heavy drinkers.

Drinking coffee after a bout with the bottle has absolutely no sobering

*See "Double Clutch," Feb '72 DRIVER.

The suspect blows into the Breathalyzer which automatically, and infallibly, records his BAC. A BAC of 0.10 percent is a legal presumption of drunkenness in the states where this test is used.

Drinking while driving is asking for big trouble.

(right)
Drivers on Zaragoza Air Base, Spain, receive a clear reminder about the dangers of drinking and driving from special traffic signs. The signs are just one aspect of the base's active drug-alcohol abuse deterrent program. They were recently installed at several strategic on-base locations.

(USAF photo by Capt Jon W. Alquist)

effects. By the time you get to the coffee cup, the alcohol you drank is already in your blood.

BODY FACTORS

Some people *apparently* can drink more than others and still *seem to be* sober enough to drive. Three airmen who took part in a controlled drinking test proved otherwise. One was a "heavy" drinker, the second was a "social" drinker, and the third was a non-drinker. When they got to the bottom of the bottle, all three were legally drunk, although the "heavy" drinker *seemed to be* better able to handle himself.

A lot of things affect your drinking abilities including the amount of food you have eaten, the kind of mix you use in your drinks, possible interaction with *other* drugs, and fatigue.

If you're tired out after a hard day's work and stop off for a "quick one" on the way home, the alcohol is going to hit you harder and faster than if you had first eaten a meal. Your body is in no condition to fight off the additional load you throw on it if you drink when you're fatigued.

Food absorbs alcohol and helps slow down the rate at which it is absorbed into the blood. However, never kid yourself into thinking that a big meal before a night out is going to keep you sober. All that alcohol has to go somewhere, and it goes into your bloodstream, even though the rate of absorption is a little slower than if you've skipped the meal.

Carbonated mixes in your drinks allow the alcohol to be absorbed into your blood at a faster rate than using tomato juice or water.

MEDICINE WARNING

If you have been taking any kind of medicine, whether prescribed by a doctor or not, alcohol can interact with it and produce some chilling results. If your doctor prescribes a medicine, be sure to ask him if it will have any harmful effects if mixed with alcohol.

Over-the-counter drugs are judged to be the worst offenders, especially the "stay-awake" pills or capsules. These little gems can do you in if you mix them with alcohol.

"POT" CAN CAN YOU

The effects of "pot" on your system are the results of a tongue-twisting, mind-buster called tetrahydrocannabinol (THC).

Among other things, THC lowers your visual and hearing levels, creates mental delusions, slurs your speech, and makes your heart work harder.

While "pot" is doing all this, you feel "high," but your body is far from being in good shape. When you combine the "high" of "pot" and the "low" of alcohol (a depressant drug), the results can be disastrous. "Pot" alone makes weird things happen to your time/distance perception rates. This kind of mental unbalance can cause you to drive into the side of a speeding train. And all the time you think you have enough time and space to miss it.

In short, the effects of "pot" itself are bad enough, but when you combine it with alcohol, you are really asking for trouble.

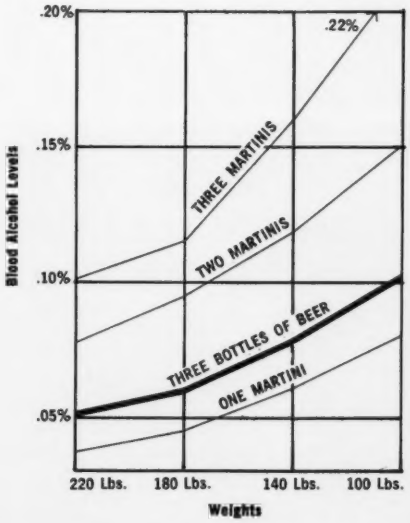
THE SOCIABLE KILLER

Almost everyone takes a drink now and then, and most people drive after drinking. But sociable or not, any drinking driver can become a killer. Every time you drink and then drive, you put yourself into a driving situation that could be the total end.

If you party occasionally (and who doesn't?), take along one of your non-drinking buddies and give him your car keys before the celebration gets off the ground. Or, you can phone a cab, after the party, to take you home. Any route you take to keep from driving after you have been drinking is a good way to go. And, your chances of being alive the next day will be much improved.

Until someone invents a foolproof system for separating the social drinkers from the problem drinkers, you're going to have to take your chances every time you get behind the wheel.

Just do your part by keeping your own condition on the right side of the ledger and by keeping alert for that "one-out-of-50 driver." ●



How three martinis will bomb you by kicking your BAC up to more than 0.22 percent in one hour. Three beers aren't all that innocent, either. They'll raise your BAC to the 0.05 percent level, and that's bad news, too.

If our mail is any indication, our readers really dig this column and enjoy thinking about our questions. We are pleased that so many of you have written [to us] to tell us exactly what you think about the subjects we discuss here. It shows your willingness to get involved in **your** magazine, and gives us all exposure to the thinking of fellow drivers. Address your comments to: Editor, DRIVER Magazine, AFISC/SEDD, Norton AFB CA 92409.

The opinions expressed are those of the individuals questioned, and do not necessarily represent the position of DRIVER.

OPINIONS

HERE ARE THE QUESTIONS:

1. What bugs you most about other drivers?
2. What do you think about seat belts? Do you, or do you not, wear them?
3. When you drive, do you ever think about the possibility or consequences of an accident?
4. What comments do you have about the push to require more safely constructed cars?
5. Insurance companies charge higher rates for younger drivers in the high-risk age group. What comments do you have on this?
6. General comments.

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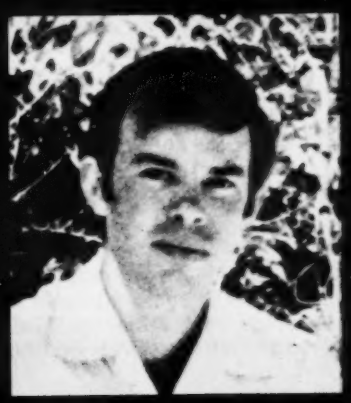
LIBERTY
IN GOD WE TRUST



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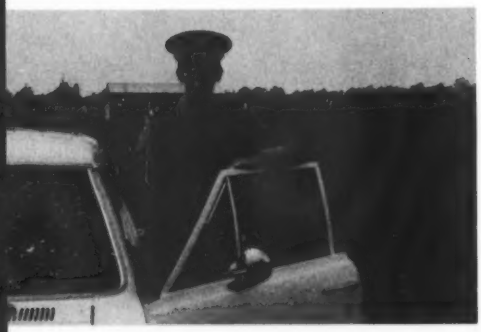
OPINIONS

SSGT THOMAS CACECI, USAF
Home: North Springfield, Virginia

1. There are so **many** of them! I firmly believe that not everybody should be permitted to drive; many people are not sufficiently responsible or physically capable of driving safely. Serious consideration must be given to raising the minimum driving age to 21, and to mandatory safety training. Also, periodic re-testing and ruthless elimination of consistently irresponsible drivers must be considered.

2. Anyone who does not use his seat belt, and compel his passengers to do so, is out of his mind.

3. I have had several near misses, and I attribute my escapes to keeping my car in proper mechanical condition so that I can control it at all times without fear of failure; and to luck. I try to plan ahead and plot escape routes in case a nasty situation develops. I am conscientious about not following too closely, especially on the highway.



ENSIGN WILLIAM M. RILEY, USCGR
Home: Snow Hill, Maryland

1. Drivers who pass me when I am going at the speed limit—and with traffic coming the other way, and in plain sight!

2. We are going the wrong way with seat belt legislation. Idiot-proof mechanical arms that buckle the belt around me are an insult to my intelligence. A possible solution to the civil suits resulting from accident injuries would be a revision to the laws stating that **no one,** driver or passenger, who was not wearing belts at the time of an accident, be allowed to sue anyone for injury.

In any event, I wear belts all the time, and harnesses when available.

Photo by Bill Tolbert

SSGT WAYNE E. LEE, USAF
Home: Omaha, Nebraska

1. Generally speaking, the poor driving habits displayed by so many drivers. And, the lack of consideration they display toward others using the same roads.

2. When I am driving, I like to feel that I am a part of the car; that the car and I are a cohesive entity, working, performing, and functioning together. I value seat belts for their part in helping me achieve this unity. I believe in their value as personal injury prevention devices.

3. Constantly, though more on the possibility of an accident than the consequences. I continually evaluate the constantly changing traffic environment around me, and I try to be

CAPTAIN BRUCE MABRITO, USAF
Home: San Antonio, Texas

1. Their lack of attention to the task of driving. There is a very definite tendency to "let the car drive itself," which means the typical driver has little positive control over his car and cannot avoid accidents, or accident-making situations.

2. Seat belts are the minimum! A year ago there was a federal report to the effect that not a single person had been fatally injured in auto accidents while using **both** seat belts and shoulder harnesses. Since seat belts are sometimes hard to remember to use, I applaud the federal requirements

4. The American automobile industry has backed itself into a corner. They cannot bring themselves to produce a safer automobile by scaling down their designs and producing smaller cars. They are committed to the "tank" route. Detroit has built sound, safe, and reliable autos in the past, but their advertising today stresses speed, power, and sex so much that to produce a model without engine options is playing with fiscal fire.

5. It is unfortunate, with bankruptcy and financial responsibility laws being what they are, that auto insurance has become a necessary evil. I think a better insurance system would be **voluntary** insurance of the no-fault type. And, there should be a change in the laws regarding financial responsibility to keep an uninsured driver from "getting away with murder" by simple declaration of bankruptcy.

6. I feel the present licensing standards are far too low. Currently, anyone who is not legally blind can get a driver's license, be he young, old, alcoholic, addicted to drugs, irresponsible, or what-have-you. This is asking for trouble. A driver must be qualified to accept the burden of having his own and other people's lives placed, literally, in his hands.

What holds the whole thing (driving) together is the "nut" behind the wheel. If that "nut" comes loose, all the safety features in the world won't prevent fatalities. The automobile is essentially a short-range transportation device and is a singularly inefficient means of getting from Point A to Point B.

If the money spent on new roads was made available for mass transit, the necessity for driving would be decreased. Lowering the number of cars and drivers would decrease pollution, conserve resources, and save lives.

(Won't somebody please invent a rear seat harness?)

3. Yes.

4. I am in the group that wants safer cars, but I do not claim that we are in the majority. People tie off their seat belts, push headrests down "out of the way," and then they complain about the cost of these safety items. I would like a well-built car, and am willing to pay for what I get. I don't want standard equipment pile carpeting, but I have to buy it just to get a solid car.

5. Higher insurance rates for younger drivers are justified. I'm paying them. I would like, however, to see them graduated down, based on the individual's record, instead of being arbitrarily dropped at a "magic age." I am particularly against the policy of many insurance companies who automatically raise your premium rates after an accident—especially when you were not at fault, and the other fellow's insurance paid all the claims.

6. Drivers who make left turns across a 6-lane highway in the face of oncoming traffic should be keel-hauled. Also, drivers who expect me to take the same reckless chances with my life that they take with theirs, and then lean on their horns when I won't do it, are more of a menace than those who don't stop at stop signs.

as much aware of what's happening behind me and on each side as I am of what's happening in front of me. On occasion, I have let my attention wander, only to have it brought right back to reality as a semi-truck thunders past. I don't like this kind of a surprise, and I try to keep it from happening.

4. I think the original intent was sound, but I believe the application is wrong. More driver education is required. If the money spent on "human proof," aesthetically unappetizing, under-powered and over-weight ESVs (Experimental Safety Vehicles), had been spent on motorist education and driver training, and the eradication of unfit drivers, traffic deaths (the original problem) could be reduced unbelievably.

5. Young drivers, generally speaking, lack the maturity of the oldsters. Impulsiveness is a common trait, as are carefree and hedonistic attitudes. Consider these attitudes as opposed to the oldsters, a more thoughtful and mature age group. Figure the odds. Which group is more likely to have the accidents? Personally, a motorist is a motorist, regardless of age; I keep an eye on all of them, and look forward to the day of no-fault insurance.

6. Take the time to learn all you can about your car. The more you know about it, the more you'll value and appreciate it.

for 1974: "no seat belt buckled, no start."

3. I think only about the possibility of an accident and continually look for escape routes. I have a remarkable, and I think healthy, lack of imagination regarding the consequences of an accident. No one would even get into a car if he started to consider all the possible consequences of driving!

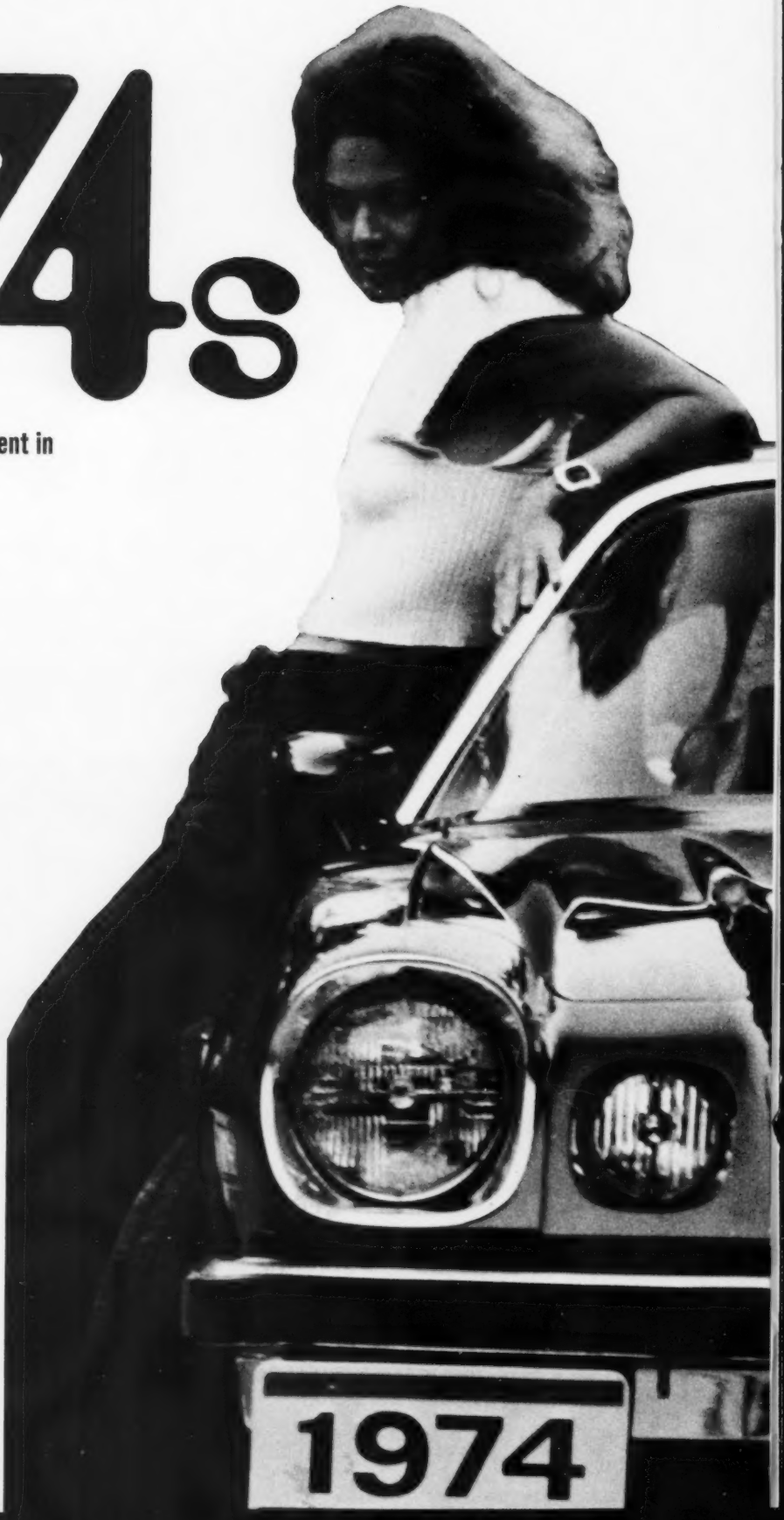
4. I'm mostly in favor of the Federal Safety Standards, especially the collapsible steering columns, recessed dash switches, and knobs.

Perhaps we should put a max weight limit on the cars—say 3,000 pounds. This way we would retain a more maneuverable and manageable car and get away from the experimental "tanks" presently advocated by the Department of Transportation.

5. Since we all exist in the same society, we must have some responsibility toward each other. There is no doubt that the younger drivers are getting ripped off royally. Companies should look at each case separately, rather than by category only. No-fault insurance would help reduce **all** insurance costs—but still not the equity. ●

the 1974s

A look at what's new and different in Detroit's latest



There is something totally new in every 1974 automobile. It's the seat belt interlock system.* To start your 1974's engine, you must first put on and fasten a much-improved lap and shoulder belt combination to complete the ignition circuit. If there are any front seat passengers, they must do the same.

There are slight differences in each system, but the basics are the same, and the purpose of saving lives is clear. Previous polite buzzers and seat belt publicity campaigns have failed to substantially increase seat belt usage. The interlock system will change that, and should reduce the colossal yearly loss of 56,000 lives on U.S. highways.

One GM engineer told DRIVER, "We think this system will cause quite a stir among the public. The regular seat belt user will applaud the improved design and convenience of the new restraints; however, the non-user may not be so happy. But hopefully, he will soon change his mind when he sees how easy it is to use the new system, and benefit from the proven advantages of wearing safety belts."

The improvements in the 1974 shoulder and lap belt arrangements

**One auto manufacturer offers an optional airbag system in several top-of-the-line models.*

are significant. The shoulder belt is anchored with an inertia-reel in the car roof which allows freedom of movement except during car deceleration when the belt is locked into position. This means it is no problem to reach the glove compartment or across the front seat to roll down the opposite window, when the car is stopped.

A shoulder level loop (GM system) serves as a guide to keep the shoulder belt properly positioned away from the user's throat. The setup is made further practical by seat-level sheaths which make it simple to buckle up—even using one hand—without fumbling for a hidden receptacle (photo #1).

To those people out to bypass the system in some way, DRIVER has this word. Try using the system first, you might even learn to like it. It is comfortable, easy to use, and extremely fast to don. In fact, after using it a few times, you may even forget you

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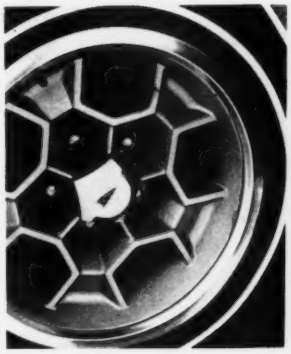
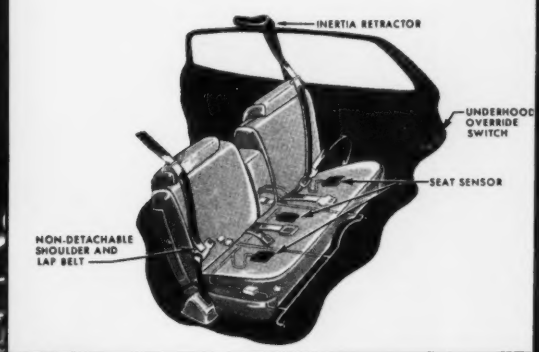


SEAT BELT/IGNITION INTERLOCK SYSTEM



'See how easy it is?" American Motors Corporation model demonstrates the convenience of the 1974 lap and shoulder harness restraint system. Insert shows GM shoulder-level loop which maintains proper shoulder belt positioning.

1

are wearing it. It's a small price to pay for greatly improving your chance for survival in an accident.

WHAT ELSE IS NEW?

As far as other drastic changes in the '74s go, don't look for much. This is what is known in the auto industry as a "carryover year." There are "appearance changes and engineering refinements" but no new model cars, or radical design changes.

DRIVER asked GM representatives why there wasn't more effort in designing fuel economy into the new cars, in light of current fuel shortages. We were told there was no fuel shortage anticipated when the 1974s were designed. The auto industry works far ahead, and is already testing *1975* vehicles.

Understandably, industry representatives are reluctant to discuss 1975 vehicles, but they did indicate there would be news of rotary engine-powered vehicles at the 1975 previews. Also, despite use of the catalytic converter to meet 1975 emission standards, engineers have found the device permits up to 20 percent better fuel economy than with 1974 model autos. This is contrary to popular speculation.

Back to 1974. The 1974 auto owner *may* notice a slight lessening of fuel economy due to an increase in body weight. Beefed-up body construction was required in order to meet stricter 1974 "no damage" bumper standards.

You may have heard rumors the metric system is coming to the U.S. Well, the rumors are true. One model of the Mustang II, shown in this article, is powered by the first U.S. engine built to all-metric specifications.

Here, by way of photos and captions, are some of the new items and features on certain 1974 autos which may be of interest to DRIVER readers:

ADJUSTABLE BRAKE/ACCELERATOR PEDALS—Recognizing the problems some people have in reaching the pedals, one leading manufacturer offers this adjustable pedal system as an option. In certain instances, use of such a system could improve the driving capabilities of a previously handicapped driver (photo #2).

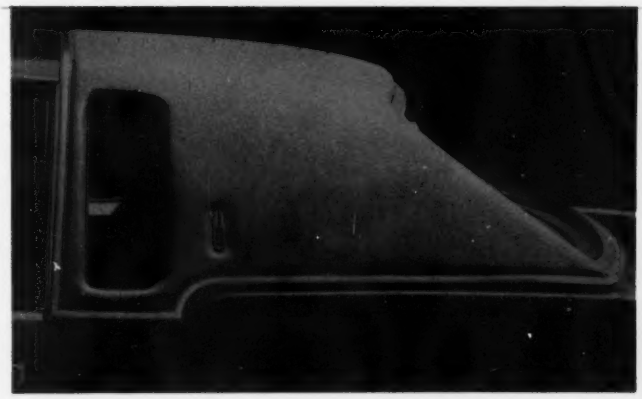
2

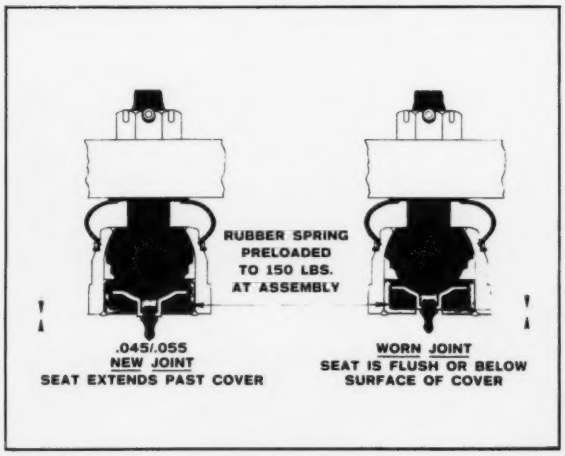
BALL JOINT WEAR INDICATOR—The fact the auto industry has built this feature into certain vehicles should indicate something to ALL drivers. Ball joint wear can be a serious problem, resulting in loss of steering control, and possibly an accident. Know how to check your vehicle for ball joint wear, or have it checked periodically by a qualified front-end mechanic (#3).

AUDIBLE DISC BRAKE LINING WEAR INDICATOR—Another feature available on some new autos. When brake pads wear beyond a certain danger point, an audible squealing sound is produced by a sensing device. This feature first appeared in 1973 (photo #4).

THROTTLE RETURN SYSTEM—Prevents throttle sticking at full open position. This is standard equipment on all '74s (no photo).

continued





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continued

THE 1974s

RADIAL TIRE MATCHING—Certain model 1974 autos will come with suspension systems "tuned" for radial tires of certain specifications and dimensions. When it comes time to replace the tires, the consumer need merely check the sidewalls for a part number. This part number can be matched by a tire dealer with tires of identical dimensional and performance specifications as the original. Industry representatives, by the way, praise their steel-belted radial tire in a number of areas, including its guaranteed 40,000-mile tread life, improved road hazard resistance, improved wet weather and snow traction, reduced rolling resistance, and optimum ride and handling (no photo).

OPTIONAL ROLL BARS FOR JEEPS (photo #5).

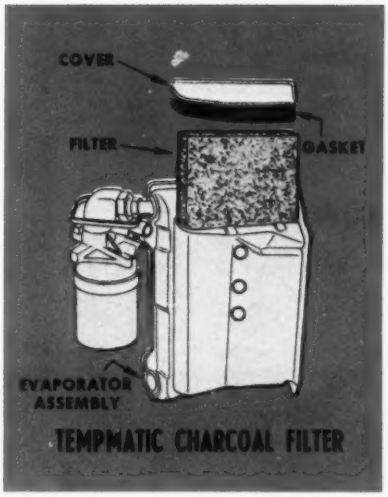
HIGH-ENERGY, self-contained, solid-state ignition system—Claimed to permit faster starts due to a 150 percent higher voltage output. There are no points or condenser to wear out, nor cam or rubbing block (photo #5A).

5

TEMPMATIC AIR CONDITIONING FILTER—Reduces odors and fumes entering the passenger compartment via the air conditioning system. (photo #6).

REMOTELY ADJUSTABLE MIRROR—Some '74s have this option available for BOTH outside mirrors. It allows the driver to adjust his mirrors with a minimum of distraction (photo #7).

DIGITAL CLOCKS—A quick glance is all it takes (photo #8) ●



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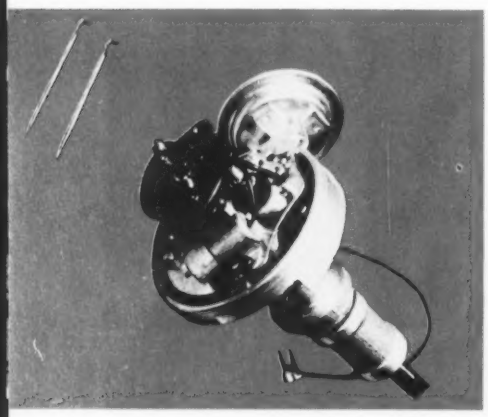

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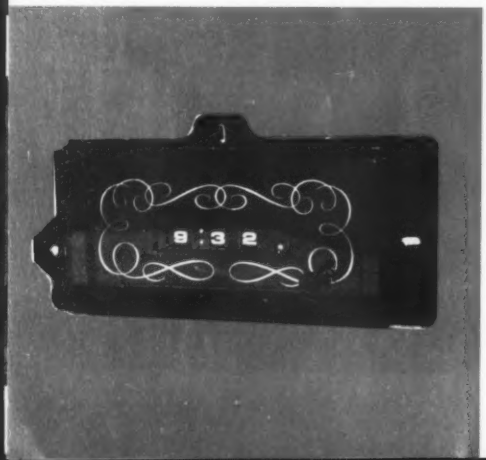

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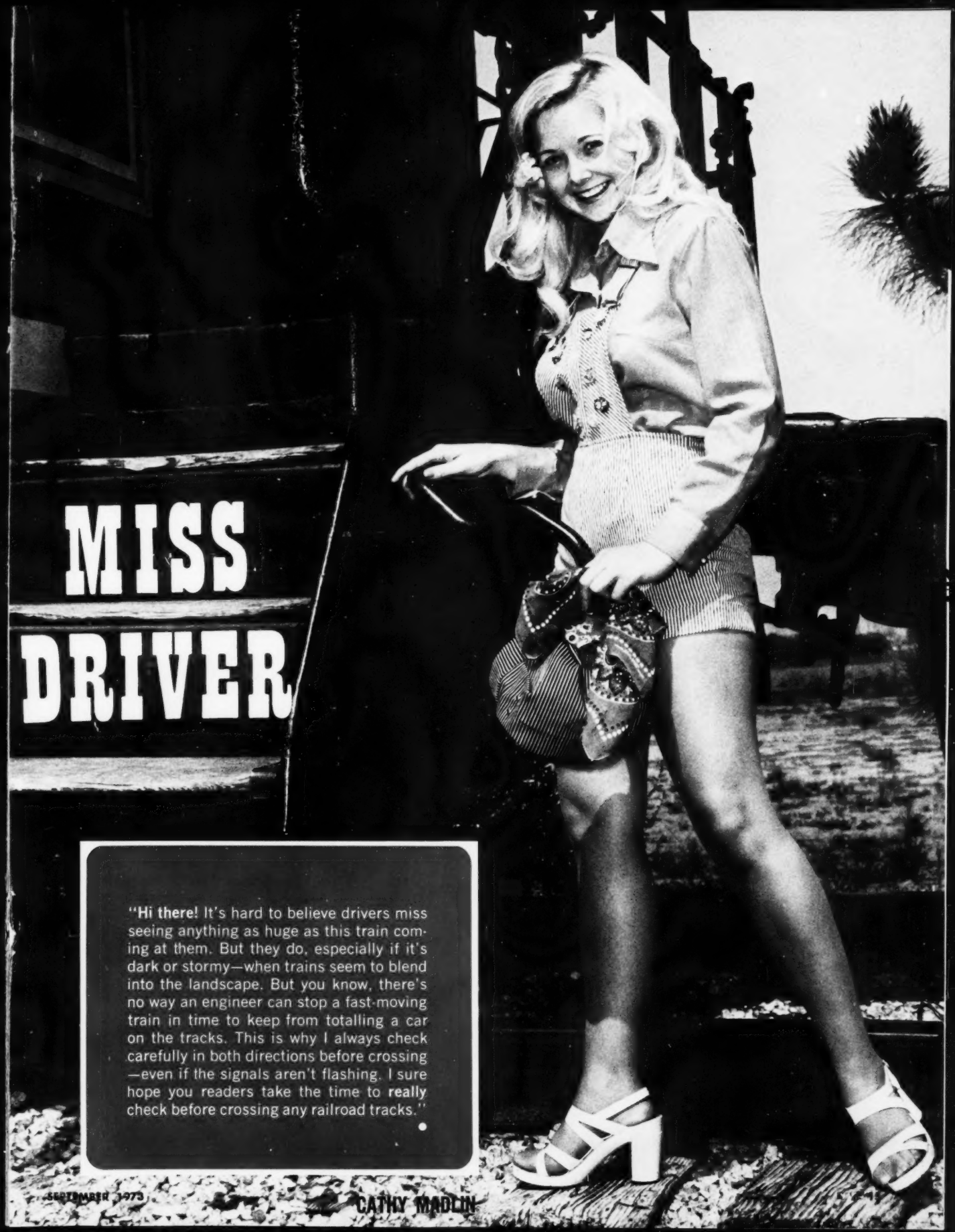
DRIVER


MISS
DRIVER
"Hi there! It's hard to believe drivers miss seeing anything as huge as this train coming at them. But they do, especially if it's dark or stormy—when trains seem to blend into the landscape. But you know, there's no way an engineer can stop a fast-moving train in time to keep from totalling a car on the tracks. This is why I always check carefully in both directions before crossing—even if the signals aren't flashing. I sure hope you readers take the time to really check before crossing any railroad tracks."
SEPTEMBER 1973
CATHY MADLIN

Talk about a lot of tracks. . .! If a driver attempts to take a dozen tracks without first checking everything in both directions, he is probably headed straight into trouble.

This large, white painted sign on the road, in conjunction with the round, yellow sign posted at the berm, gives the motorist plenty of warning before he reaches the crossing.

DOUBLE-CROSSED at the

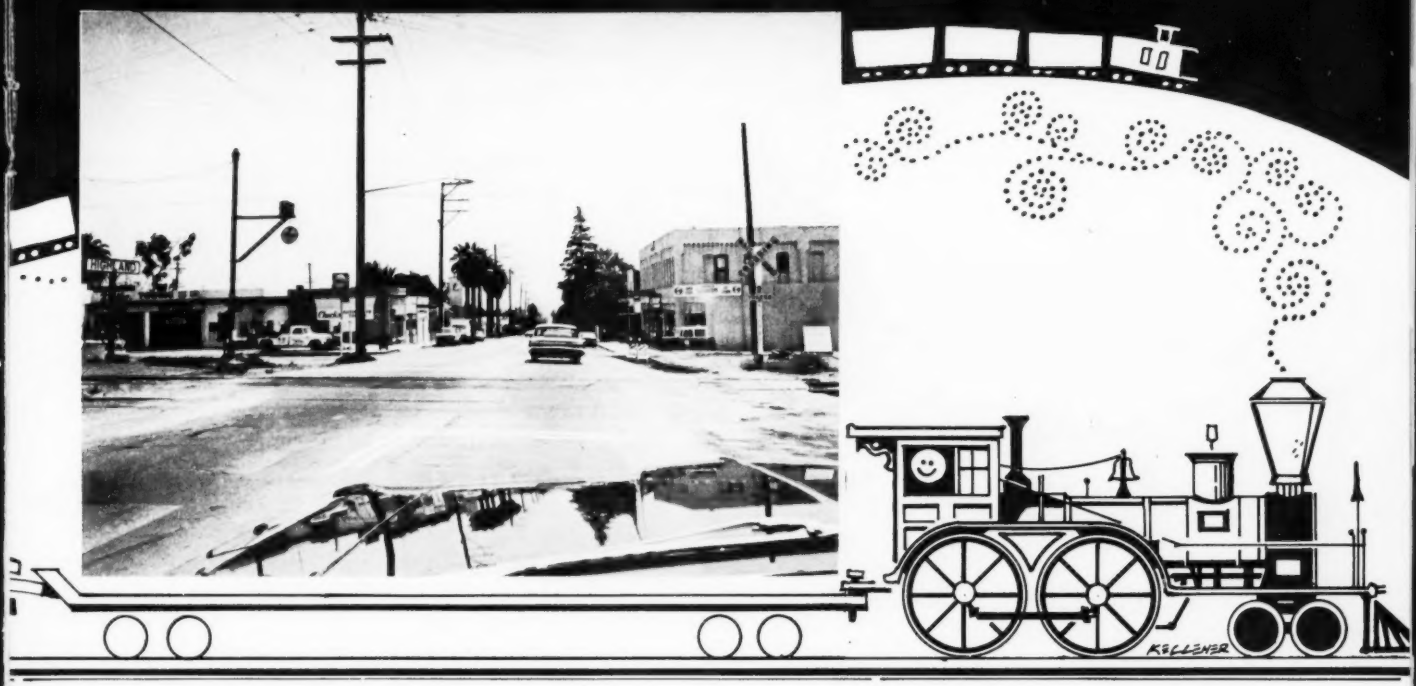
A 400-ton train wins every time

What would you think of a person who deliberately drove his car broadside into a wall? Some sort of a nut, you say? Well, how about the individual who decides to battle a train, and runs into it broadside? Far-fetched? Not really; it happens frequently. In fact, eight Air Forcers had run-ins with trains in 1972, and lost.

DRIVER wanted to find out why anyone would drive into the side of a train. To get a different perspective, we talked to some professional railroaders

These country boys know that the train is almost at the crossing because they have seen the flashing lights and heard the warning bell. Wisely, they stop and wait for it to get past—rather than attempting to beat it.

Typical "unguarded" grade crossing found in many smaller communities, and on many military bases. These are to be approached with extra special caution.



CROSSING

about grade crossing* accidents while riding aboard a Santa Fe locomotive.

Mr. James E. Thornton, foreman of engines at the San Bernardino, California, division of the Santa Fe Railroad, told us, "When I was a full-time engineer, I hit several cars at grade crossings. There was absolutely nothing I could do to avoid those accidents. You don't stop a freight train on a dime. I could never understand why those motorists tried to beat the odds at the crossing."

**A grade crossing is where a highway and a railroad track cross at the same level, or grade.*

At 30 mph, this freight train needs 3000 feet to stop. If you see him this close when you are on a crossing, you have just bought the farm.

PLENTY OF WARNING

You have a lot going for you at railroad grade crossings, provided you are with the scene.

At every crossing there is the familiar "cross-buck" sign that warns: STOP, LOOK, LISTEN! Quite often you will also see a RR sign painted on the road some distance before you get to the crossing. And, there is the round, yellow metal sign at the side of the road to

continued

(left)
The gate is down, the lights are flashing—and a train is coming. The smart driver won't try to drive around the barrier and beat the train.

(below)
Don't be in a big hurry to zoom across the tracks as soon as the caboose gets by. Wait a second or two and check the tracks to be sure they are clear before you move out.

Once the gates are lifted—and you have made a visual check to be sure the tracks are clear—then it is safe to proceed over the railroad right-of-way. Note the bicyclist keeping well to the right as he negotiates the tracks.

Jeff A. M. Coats, engineer on the Santa Fe's Super "C" freight, demonstrated the driving attitudes and techniques that made it possible for him to celebrate his 46th year of engineering.

give additional warning.

If you miss all these, there are flashing and swinging red lights, protective gates, and loud bells to get your attention. The locomotive head lamp should grab you, too; especially if it is one of the types which swings from side to side.

SIGNAL MALFUNCTIONS

The fact the lights are not flashing, and the gates are not down, *does not mean* a train is not on the way. Mechanical warning devices *do* have failures. Always treat a silent signal with distrust; slow down, or stop, and have a look and listen before proceeding.

Crank down a window if your car is closed up because of weather, and bend an ear for a couple of seconds. If you hear the train's whistle, even though you can't see the train, you will be warned of its approach.

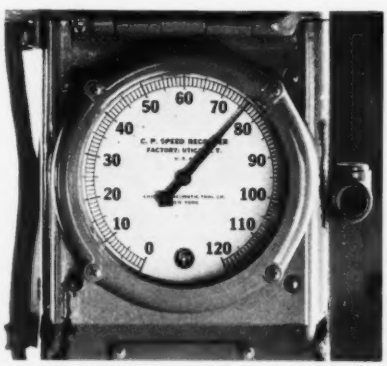
IT TAKES TIME

Mr. Jeff A. M. Coats, engineer on the Santa Fe Super "C" ("fastest freight in the world"), explained how the train's brakes operate. He can't slam them on all at once; instead, they are "programmed" to go on at ever-increasing pressure that is just short of locking up the wheels.

"Even in an emergency stop, such as a car stalled on the tracks," he said, "I can't lock up the wheels. This is just as well, because locked wheels on a train are just as ineffective as locking up the wheels on your car. You just slide and slide, and never seem to get stopped."

We were given a demonstration of the freight's stopping power—and the distance it takes. A stopped freight on the parallel track, and a waving crewman, warned that something might be around the curve on our track. Mr. Coats put on the brakes and we used up about a mile and a half of track slowing down from 76 mph to 30 mph.

We found out later that a train traveling 30 mph covers 44 feet of track a second. If it is moving at 60 mph, it is covering 92 feet of track every second. And, we were told, a train that is a



More than a mile and a half of track was used up when the 498-ton freight was slowed from 76 mph to 30 mph.

This is how Jeff Coats sees a car at a grade crossing. In a matter of seconds, the train is at the crossing. There's no stopping.

Jeff Coats says he enjoys this view of cars at a crossing—safely behind the gate, waiting for him to get past.

half-mile from a crossing, and moving at 60 mph, is in no way going to stop before it gets to that crossing. If you're out there, you are going to get crunched.

On a dry track, an 8-car passenger train traveling 60 mph will use up 3500 feet to stop. A 150-car freight train traveling at only 30 mph is going to need more than 3000 feet in which to stop. On wet tracks, the stopping distance is even greater.

NONATTENTIVE DRIVERS

Incredible as it may seem, many drivers don't pay attention to what is going on outside their cars. They are too busy talking with the passengers, or doing something that diverts their attention away from driving.

Some of these people get clanked because they think they "know" a certain crossing and the train schedules. "What they don't know," said the Santa Fe man, "is that a special, or unscheduled, train can come along at any time. Expect a train on any track at any time."

Probably the worst kind of nonattentive driver is the guy who wears a stereo headset. Police tests prove that stereo headset-wearing drivers can't even hear a police car siren when being followed closely by a patrol car. So, it's easy to understand how they miss hearing a train whistling in the distance.

ALCOHOL AND DRUGS

Railroad company rules forbid train crews working while under the influence of alcohol or drugs. "It's just too dangerous," said Mr. Coats. "There is too much on an engineer's mind; or on the mind of a brakeman or a conductor, for that matter," he explained. "We can't afford to be all muddled up with booze or drugs."

The same caution applies to drivers. The Air Force lost eight persons in seven car/train accidents in 1972. Blood tests showed intoxicating levels of alcohol in some victims, and evidence of drug use in others.

Alcohol depresses your nervous system and slows down your reactions and your ability to think clearly and quickly. Many drugs are equally dangerous to your driving abilities.*

If you are taking a prescription drug, you should check with your doctor to see if it will affect your driving in any way. If he says "yes," leave your car in the garage and ride with a buddy.

MULTIPLE TRACK CROSSINGS

Railroad crossings with more than one set of tracks call for extra caution on your part. More than one driver has been zapped because he failed to see, or hear, a second train at the crossing.

Be especially wary if you see a train stopped near a crossing, and the warning signals are in operation. Something is happening out there, and you have to be extra alert. There is probably another train coming from the opposite direction, and it is working the signals. This is the deadly train, the one that will nail the unwary driver.**

MOTORCYCLE PROBLEMS

Expert bike riders tell us that the only way for a motorcyclist to cross railroad tracks is "slowly, and at right angles to the rails." Excess speed can make a bike bounce out of control, or flip the front wheel sideways and dump you on the tracks.

If you get a wheel trapped between two rails—and if you have plenty of time, try deflating the tire until you can pull the wheel free. Then ride "slow and easy" to the nearest service station and reinflate the tire to the correct pressure.

UNGUARDED CROSSINGS

All railroad grade crossings have some kind of warning signal or sign; but not all are equipped with barriers to keep you off the tracks when a train is coming. DRIVER considers all such crossings as "unguarded,"" and recommends that they be treated with as much respect as a rattlesnake.

"Very few drivers can accurately judge the speed of a train," Mike Hamilton, a brakeman, told us. "I found that out by watching cars come up to a crossing, then hesitate while the driver takes a look at the train, trying to make up his mind whether or not he's got time to get across. They know the train is moving fast," Hamilton said, "but they don't know *how* fast. Some of them try to beat it over the tracks, and that's the end."

FOLLOW THE PROS

If you follow the examples of the commercial and school bus drivers when they come to railroad crossings, you

continued

* *See "Alcohol, Drugs, and Driving," p. 1, this issue.*

** *See "Backfire," Apr '72 DRIVER.*

continued

DOUBLE-CROSSED AT THE CROSSING

will have it made. These pros *always* stop at the crossing and look each way. Then they open the bus door and listen for a train. If they don't see or hear anything, off they go.

continued on page 28

Highways parallel to the tracks are particularly dangerous when they turn to cross the tracks. Extra caution should be used on these roads.

And this is what Jeff doesn't particularly like to see—a grade crossing marked only with a "cross-buck" sign and not equipped with gates.

(left)
A double barrier is double protection for the motorist. Only a foolhardy driver would go around the end in an attempt to beat the train to the crossing.

YOUR LUCKY 13

Cautions from the guys who really know—the railroaders.

- Slow down when you see a railroad advance warning sign, and be prepared to stop if a train is approaching.
- Stop for flashing lights at a crossing.
- Never pass other cars which are waiting at a crossing.
- Do not drive around the gates.
- After a train passes, don't take off until you can see far enough down the track to make certain that another train is not coming on another track.
- Never move onto the tracks while the flashing lights are still operating.
- Don't ignore crossing signs just because you're in familiar territory and think you know the train schedules by heart.
- Be extra alert when visibility is limited by weather, or when you are driving in unfamiliar territory or on slippery roads.
- Be extra alert at night—don't overdrive your headlamps and slam into the side of a train.
- Don't become so distracted by conversation with passengers that you ignore signs, lights, horns, bells, and all other warning devices.
- Be especially attentive to signs when you have the air conditioning and radio going because they may keep you from hearing the train whistle or warning bells.
- Never drive onto a railroad crossing unless you are absolutely sure there is room for you to clear the tracks.
- If you get caught on the tracks, in a line of traffic when a train is approaching, abandon your car at once. No car is worth your life.

CAR TROUBLES

If your luck runs out, your car may quit cold in the middle of a railroad crossing. If this happens, the name of the game is "Get Out and Run!" And be sure to run in the direction of the oncoming train so that you won't be struck by flying debris when the engine junks your car.

Under very special circumstances and conditions, you might—just might—have a chance to save your car.

If you cannot see a train coming, and if you can see a long way down the track in both directions, there *may be a chance* of getting your car out of danger.

Post lookouts to keep an eye in both directions, and then try using the starter to move your car.

This trick will work if your car has a manual transmission: put the gears in second or high and hit the starter key.

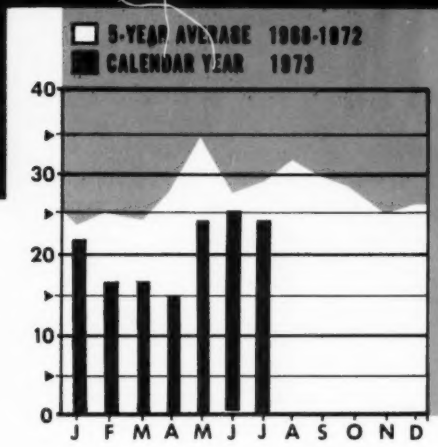
If your car has an automatic transmission, put it in Neutral, and try pushing the car off the tracks.

If you have the slightest doubt about accomplishing either job safely—forget it. Abandon the car! It is better to lose your car than your life.

A good point passed on to us by a pro truck driver is that you should never attempt to shift gears while your car is crossing the tracks. The engine can stall at slow speeds, while pulling the car over the bumpy rails, if you downshift while it is under a heavy load.

If your car has a manual transmission, downshift before you get to the tracks, and *do not* change gears while you are on the tracks.

An automatic transmission will take care of its own gear changing, according to the load on the engine. Just to be doubly safe, however, you could slip it down into L1, or a comparable gear, before you get onto the tracks and leave it there until you are safely across. Then, shift back up to Drive and go on your way.



TOTAL FATALITIES as of 31 JULY :

CY 1973: 144

5-YEAR AVERAGE: 192

A monthly recap of selected accidents—presented solely in the hope some will benefit from the unfortunate experiences of others

HOW GOES IT?

UNSECURED HELMET

Rank: Sgt **Type vehicle:** 1972 Moto Guzzi 850cc motorcycle

At 0745 the Sgt was riding through town at 40 mph in a 30 mph zone. He passed two vehicles on the right, and was attempting to pass a third when it made a right turn in front of him at an intersection. The bike struck the car and the Sgt was thrown clear, then he slid across the intersection. He was wearing an approved type helmet, but it came off because the chin strap was not fastened. His head impacted a fire hydrant and he died.

Probable cause:
Improper passing on right.

Probable contributing factors:
Speed too fast for conditions; failure to yield right of way; unsecured helmet.

MODIFIED BIKE

Rank: Sgt **Type vehicle:** 1971 Triumph 650cc motorcycle

The Sgt was riding north on a two-lane road on his modified motorcycle at an estimated 52 mph. He approached a railroad crossing at 1850, and had an unobstructed view to both sides. A locomotive was traveling east on the single line spur track at an estimated 18 mph. The engineer stated that he sounded his warning horn as he approached and entered the crossing. Two nearby witnesses, however, said they did not hear the warning horn.

The Sgt apparently saw or heard the locomotive and applied the brake. A 99-foot straight braking skid mark was left by the *rear wheel only*. He succeded in laying the bike on its right side and slid another 36 feet before impacting the locomotive's wheels. The Sgt's helmet was on the sissy bar and he died of massive head injuries.

The motorcycle had been extensively modified and the front forks were extended 10 inches. The handlebars were raised and extended, the speedometer and rear suspension had been removed, and the rear end dropped four or five inches. The *front brake was not connected.*

Probable cause:
Failure to yield right-of-way.

Probable contributing causes:
Mods to bike significantly reduced its maneuverability and cut its braking efficiency; operator not wearing helmet; familiarity with road may have led to lack of caution.

ASLEEP AT THE WHEEL

Rank: Amn **Type vehicle:** 1972 Opel Sport 1900

Traveling at what was believed to be excessive speed while returning from leave, the airman apparently fell asleep at the wheel at 0330. He awoke, overcorrected to the left, and the car crossed both traffic lanes and struck the median strip. It rolled 1½ times, ejecting both occupants. Seat belts were not used. The driver was killed and the passenger injured.

Probable cause:
Falling asleep at the wheel.

Probable contributing factors:
Excessive speed; fatigue; failure to use seat belts.

FATIGUE

Rank: Sgt **Type vehicle:** 1962 Ford station wagon

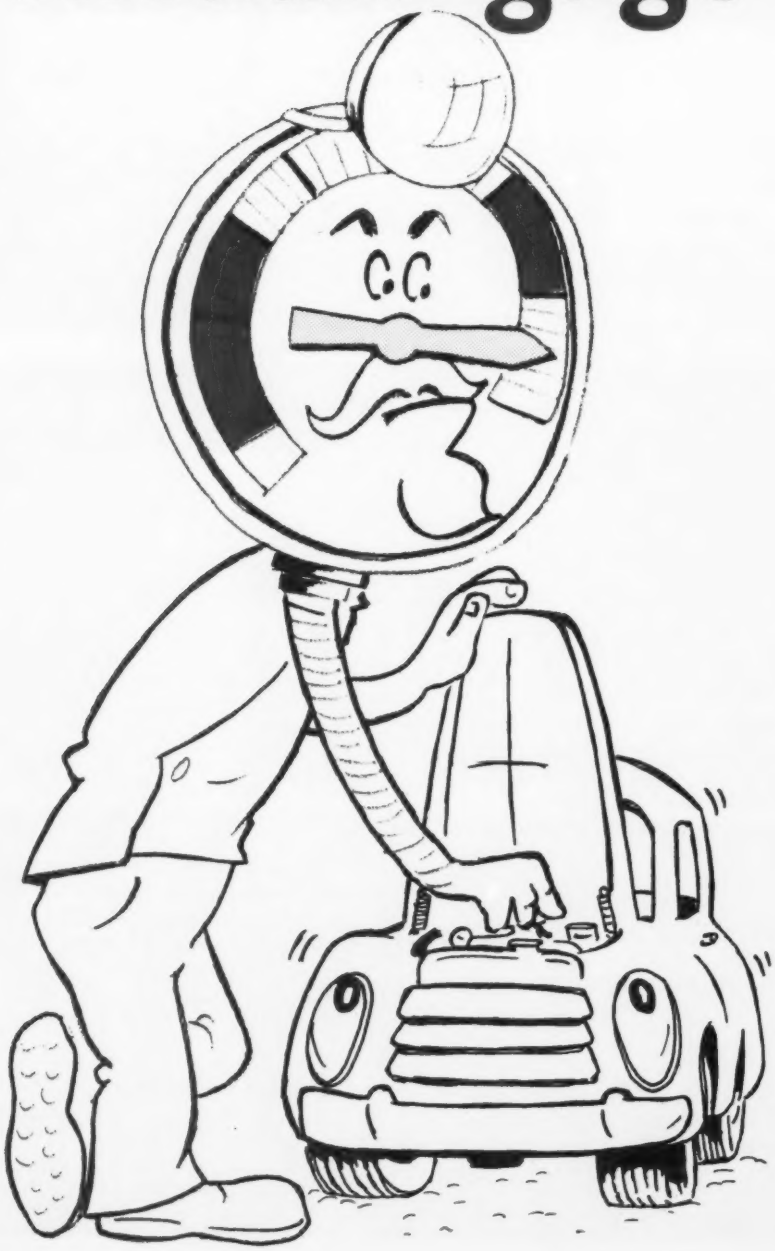
After an evening of dining and drinking, the sergeant went home at 2230. At 0300 he arose and, with a friend, began driving to a fishing derby. He was towing an 18-foot, 80-hp outboard motorboat behind his station wagon. After traveling about 100 miles, his car drifted from the right lane into the breakdown lane, at about 65 mph, and impacted a parked station wagon. Seat belts were not used, and the sergeant died of a fractured skull. The passenger suffered minor injuries.

Probable cause:
Fatigue.

Probable contributing factors:
Nonuse of seat belts; falling asleep at the wheel.

THE BACK-YARD MECHANIC PART IX

the amazing vacuum gage



Have you always threatened to —but never really gotten into back-yard mechanic-type work? If so, the reason may be that you think all kinds of expensive equipment is needed to work on your car. But, this just isn't true. Sure, scientific engine analyzers are great, and sometimes necessary; but in many cases, simple equipment will do the job. Take the $5 vacuum gage for example.

The "engine doctor," as the vacuum gage is known, can quickly and accurately diagnose more than 30 engine ailments, including sticking valves, improperly adjusted carburetors, and even blown head gaskets. Sound like a lot to expect from such a simple, inexpensive device? Well, it's not when you consider how important vacuum is to your car.

VACUUM ESSENTIAL

Your car's engine creates, and actually operates on vacuum. In addition, many engine parts and accessories are controlled by vacuum, including the automatic choke and power brakes.

Vacuum is created in each engine cylinder as the piston goes down on its intake stroke. When the intake valve opens, the fresh fuel charge is drawn from the intake manifold into the combustion chamber (Fig. 1). This creates vacuum at the intake manifold, which varies according to the engine's operating condition. Vacuum is highest when the engine is idling, since the carburetor throttle plate is closed. As the engine is accelerated, the plate opens and vacuum drops.

When an engine is operating properly, there is a steady, constant vacuum at idle, as each cylinder smoothly and efficiently draws in its fuel charge. But, any malfunction or misadjustment which affects engine efficiency also alters the vacuum. Since specific engine problems affect manifold vacuum in certain ways, a vacuum gage can accurately diagnose the condition of an engine by simply measuring the amount and condition of vacuum.

INSTALL IT PROPERLY

Before the "doctor" can do its thing, however, it has to be installed properly. You can't just pull the vacuum advance line at the distributor

An inexpensive vacuum gage is the backyard mechanic's most useful diagnostic tool.

To get accurate vacuum readings, the gage must be attached to a primary source of manifold vacuum. The best installation procedure varies from engine to engine, but simply attaching the gage to the vacuum advance line at the distributor doesn't work.

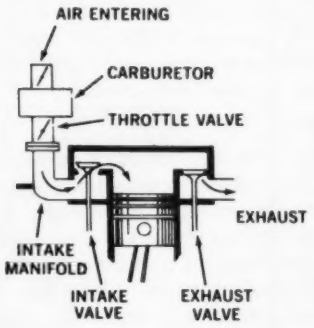


Fig. 1
Idle: Throttle plate is closed—vacuum is high. **Acceleration:** Throttle plate opens (shown) allowing air to be drawn in—vacuum drops.

and attach the gage, as you might think. If you expect accurate, reliable readings, the gage has to be attached to a primary source of manifold vacuum.

In most cases, the gage will come with complete instructions, so installing it shouldn't be a hassle. Adequate vacuum gages range in price from $4 to $12 at most auto and discount stores. The better models, however, have more complete instructions, as well as all necessary installation hardware.

SEVERAL METHODS

The 3 most common vacuum gage installation procedures are outlined below, but for best results, follow the procedure recommended by the gage's manufacturer. On older cars with vacuum-operated windshield wipers, installing a gage is super-easy. Simply remove the wiper system vacuum hose at the intake manifold, and attach the gage's hose. Few cars, however, have vacuum-operated wipers today, so you'll probably need to locate another vacuum source.

Many cars have a threaded plug in the manifold which can be removed, and a special fitting installed. This fitting is usually supplied with the vacuum gage. But if your's didn't come with one, or it is the wrong size, a parts house should be able to supply a fitting which will work.

If there isn't a plug in the manifold, simply obtain a T-fitting which can be installed in a vacuum line. The hose which attaches to the power brake unit or the vacuum assist on disc brake-equipped cars works best. Attach the gage as close to the vacuum source as possible.

GAS MILEAGE?

When you have the gage installed according to instructions, warm the engine to operating temperature and set the idle to specifications. The en-

continued

A steady vacuum reading in the acceptable range is an excellent indication that your car's engine is in good condition.

A dash-mountable vacuum gage, which is calibrated in fuel economy ranges, is a help in driving for maximum gas mileage. It also displays accurate engine diagnosis at a glance.

gine must be idling correctly to get an accurate vacuum reading, since vacuum drops as the throttle plate opens. Because high vacuum readings mean narrow throttle plate openings, they also mean high fuel economy. Many people install a dash-mountable vacuum gage and use it to help maximize their gas mileage by driving with high vacuum readings at all times.

CORRECT READINGS

With the engine warm and idling properly, getting an instant engine diagnosis is easy. Simply watch the action of the gage's needle. A healthy engine will give a steady, constant vacuum reading between 17 and 22 inches.* On some newer 4- and 6-cylinder engines, however, a reading of 15 inches is considered acceptable. With high-performance engines, a slight flicker of the needle can also be expected. You should discount for the fact that the gage reading will drop about 1 inch for each 1,000 feet above sea level.

If your car's engine gives a steady vacuum reading in the acceptable range when idling, and the needle drops toward zero and jumps back past 20 when the throttle is opened and closed quickly; the engine is in good shape. *Any* other readings indicate a problem.

INCORRECT READINGS

Probably the most common "not so good" reading is when the needle oscillates slowly. This means something is causing engine speed to fluctuate—probably faulty carburetion. If you get this type of reading, first check the condition of the gasket at the base of the carburetor, and tighten the nuts holding the carb to the manifold. Also, make sure the nuts holding the manifold to the engine are tight, and that the air filter is not plugged. If the needle still fluctuates, the idle mixture probably needs adjustment.

Locate, and turn the mixture adjustment screw(s) in until the gage reading drops 2 inches, or until you hit the stop on carburetors equipped with idle limiter caps. Then, turn the screw(s) out until the gage reaches the highest obtainable reading. If the needle still fluctuates after resetting the mixture, and the carb has gone 30,000 miles or so, better try a new or rebuilt carburetor.

INSTRUCTIONS

Other possible vacuum readings and what they mean should be fully explained in the gage's instructions. The accompanying chart shows some of the most common readings and what engine malfunctions they indicate. Most service manuals and auto tuneup guides also outline the many uses of the vacuum gage.

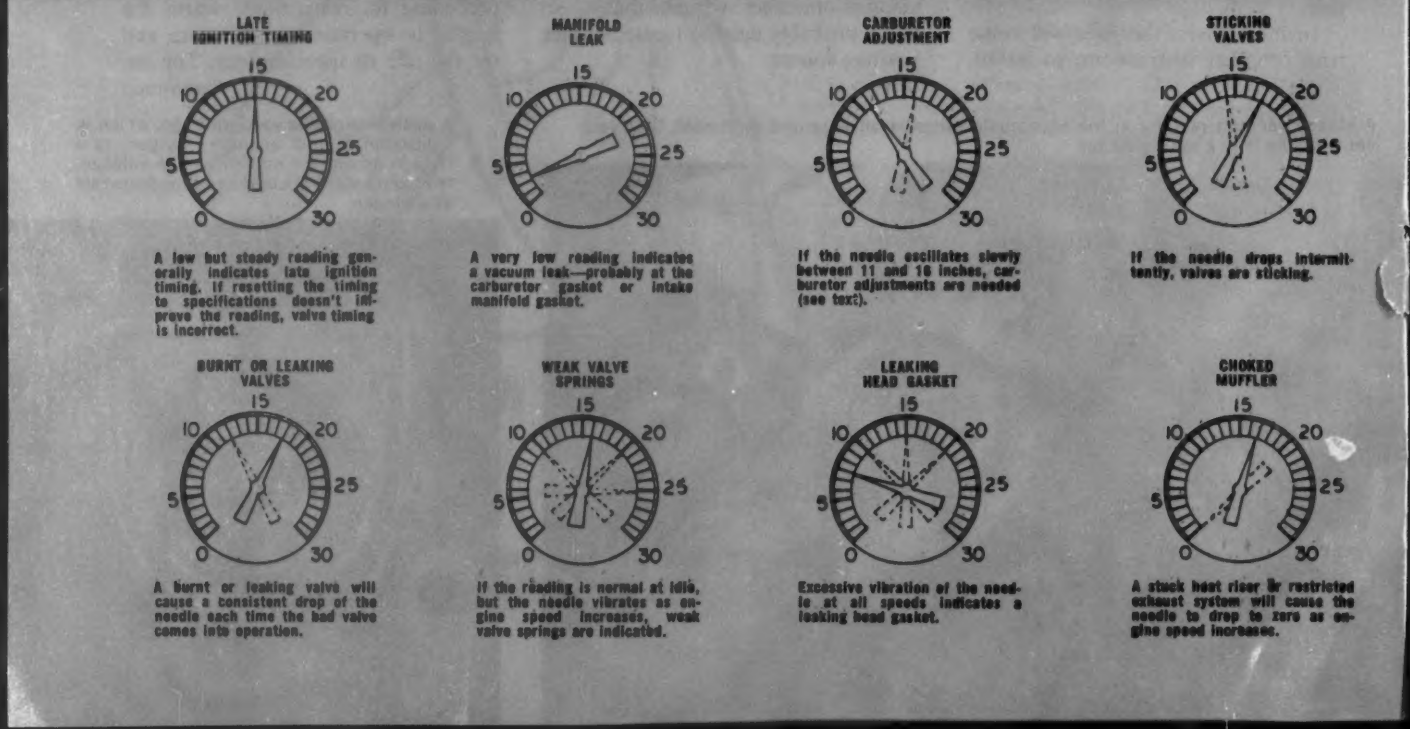
MOTOR MONITOR

The vacuum gage is an excellent diagnostic tool when you have engine problems. But, its real value occurs with more frequent use. By making regular vacuum checks, you can spot developing problems and correct them before they become serious.

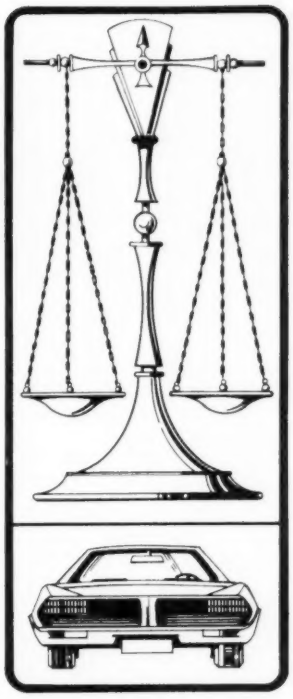
The best way to keep constant tabs on your engine is to install a permanent dash-mountable vacuum gage. These "motor monitors" are available for less than $6 at most auto supply and discount stores. Since they are calibrated in fuel economy ranges, they will help you maximize your gas mileage—as well as give you a complete engine analysis at a glance. •

A vacuum gage measures vacuum in inches of mercury.

HOW TO READ THE MANIFOLD VACUUM GAGE


LATE IGNITION TIMING
A low but steady reading generally indicates late ignition timing. If resetting the timing to specifications doesn't improve the reading, valve timing is incorrect.
MANIFOLD LEAK
A very low reading indicates a vacuum leak—probably at the carburetor gasket or intake manifold gasket.
CARBURETOR ADJUSTMENT
If the needle oscillates slowly between 11 and 16 inches, carburetor adjustments are needed (see text).
STICKING VALVES
If the needle drops intermittently, valves are sticking.
BURNT OR LEAKING VALVES
A burnt or leaking valve will cause a consistent drop of the needle each time the bad valve comes into operation.
WEAK VALVE SPRINGS
If the reading is normal at idle, but the needle vibrates as engine speed increases, weak valve springs are indicated.
LEAKING HEAD GASKET
Excessive vibration of the needle at all speeds indicates a leaking head gasket.
CHOKED MUFFLER
A stuck heat riser or restricted exhaust system will cause the needle to drop to zero as engine speed increases.

by Lt Larry S. Craig
Asst Legal Officer
11th District, U.S. Coast Guard



the LAW & the AUTOMOBILE

Should you become a victim of fraudulent activity, there are things that can be done—within the legal system—to help you recover your money or otherwise obtain satisfactory results.

AUTO REPAIR FRAUD

Automobile repair fraud is a nation-wide problem which has recently been getting much attention in the media and various state legislatures. It can affect servicemen in the lower pay grades more than the general population, because they may tend to shop around to obtain the lowest prices for automobile repairs.

This exposes them to marginal and sometimes unscrupulous operators who may not make adequate repairs, or may even make more repairs than needed. Much has been done to combat this type of fraud, but the serviceman should know in advance how to protect himself.

If you discover or suspect that the garage or mechanic who has repaired your car has in some way defrauded you, taking the following steps will give you the best chance of getting back your money or having the job reaccomplished correctly.

- Carefully document the transactions (keep receipts, repairs orders, and other related papers).
- Give the repair shop a fair chance to correct the problem.
- Consult your legal assistance officer (for specific legal alternatives available in your area) and follow through with his advice.

After you have given the repair shop a full and fair opportunity to correct any deficiencies, and they have refused to do so, there are many legal remedies that may be available to you.

In California, for example, recent state legislation has set up a program to issue state licenses to automobile repair facilities. State licensing sysem personnel can investigate complaints against repair shops, and are authorized to revoke licenses for cause. The threat of complaining to the state licensing agency can at times be a major factor in a garage's decision whether to work out a satisfactory arrangement with you.

Additionally, California has the Song-Beverly Credit Card Act. It provides that, if you paid for the repairs with a credit card, you may (under certain circumstances) refuse to pay the credit card bill because of your complaint against the auto repair shop. The "certain circumstances" involve specific limitations, so you should consult legal counsel before refusing to pay. This act puts the credit card company on your side in bringing pressure on the individual garage to do good work, or at least to work out a satisfactory settlement with you.

In virtually all areas, small claims courts can also handle auto repair complaints. The maximum amount of money involved in such a claim varies from state to state, running as high as $500 in California, with $300 a common figure. Small claims court procedures are usually very simple, and can be effective. The threat of their use can also smoke out an insurance company which may ultimately stand to lose in a complaint against a repair shop; thus promoting a satisfactory settlement without resorting to court.

Concerning what is available in your particular case, your local legal assistance officer is the best source of specific advice. •

BACKFIRE

In regard to the guy who objected to your use of the term "bike nut" (p. 26, Jul '73 DRIVER), I have the following comments. ANYONE who really enjoys getting behind the controls of any kind of a vehicle is a nut, in one sense of the word. It's his enthusiasm that makes him that way. I get this feeling when I'm on my motorcycle.

When I ride or drive, I like to present the best possible image of myself. This gives the people who may be with me reason to trust the person at the controls.

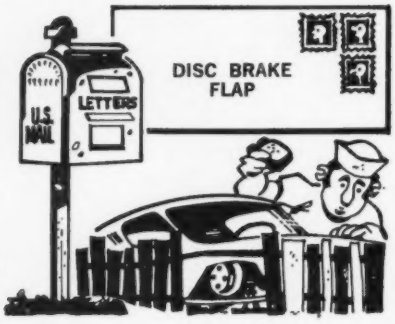
Seaman Roger Eveland
3rd Division
USS MIDWAY (CVA-41)
FPO San Francisco 96601

Thanks for your support, Roger. We're with you all the way on your comments.

In reference to "Econo Racing," May '73 DRIVER, I am very interested and wish to obtain further information on when the classes are held and how to contact the people in Riverside.

Amn Gary Kus
PSC Box 308
Castle AFB CA 95342

You can obtain the information by writing to Mr. Paul Vollmer, 6689 LaJolla Drive, Riverside CA 92504.



This concerns the advice given in the disc brake article, "The Back-Yard Mechanic," May '73 issue of DRIVER.

I recently replaced the brake pads in a Vega and a Mustang, and in both cases the master cylinder had to be opened before the pistons could be pushed back into the bores.

With the master cylinder open, the pressure created by pushing on the piston is relieved up through the system. This gives you three benefits: (1) no loss of brake fluid as it is returned to the master cylinder (unless you take the lid off the MC, then it squirts all over the place); (2) no air gets into the system, and (3) you can use channel locks to compress the cylinder, rather than a 47-pound C-clamp.

STG2 Earl Winfield
NAS Miramar Safety Center
San Diego CA 92145

You are right about opening the brake system before depressing the pistons on some brake types. This possibility is mentioned under the subhead, "Drain Some Fluid."

You will get those three benefits, but fluid back-pressure can cause master cylinder damage. Most manufacturers recommend opening and bleeding the system before depressing the pistons, to prevent damage.

Depressing the pistons with channel locks works well on some brakes, but not on others. As was pointed out in the article, various methods can be used to depress the pistons if care is taken not to damage the brake assembly. However, brake experts recommend a C-clamp as a very good alternative to the special brake tool which should be used for this job whenever possible.

Ref Lt Albrektson's letter, "No Need to Blow It," in your otherwise outstanding May issue.

Any fighter pilot can tell you that an airplane is turned by a component of lift derived through coordinated control action, not by bank. Airplanes may be banked all day without turning. Also, motorcycles bank away from pressure on the handlebars because of gyroscopic precession, not centrifugal force.

The key to two-wheeled survival is your expression, "Practice the art." I would add: avoid traffic, speed, and trails as long as you have to think about what to do with the handlebars.

Lt Col Edward S. May
PSC-1, Box 873
McChord AFB WA 98438

You are right, Colonel. The Lt was attempting to make the analogy clear to the ground-bound cyclist who might not be so well versed in the intricate theories of lift and gyroscopic precession in relation to aerial flight. His unfortunate choice of the word, "bank," for describing the lift component that turns an airplane would certainly cause a pilot to question its use. He was evidently thinking of the "bank" performed by the cyclist when moving into a turn. And, of course, use of "gyroscopic precession," instead of "centrifugal force," to describe the "out-tracking" cause would have been technically correct.

We felt his references would serve to give the non-flying cycle rider a better understanding of the out-tracking phenomenon, but should have known at least one of our pilots would object to the technical terminology.

LETTERS TO THE EDITOR

Address your letters to: **Editor**
DRIVER Magazine
AFISC/SEDD
Norton AFB CA 92409

For the edification of those who missed the original "out-tracking" explanation published in "Showdown at Mira Loma," May '71 DRIVER, here it is again:

". . . To make a maneuver properly and as quickly as possible, you must first turn in the OPPOSITE direction. That is, to go left, first steer right; and to go right, first steer left. . . ." Should you fail to do this, the front wheel will "out-track" in the direction the handlebar is turned, but will immediately scribe an arc in the opposite direction as the bike falls momentarily off-balance.

I haven't had any experiences like A1C Fisher's +90-mph crash (June '73 "Backfire"), but would like to add my 2 cents' worth.

I do a great deal of off-road driving, and think seat belts and shoulder harness are a must. Despite form-fit bucket seats, roll cage, and a good grip on the wheel, they are the only things that enable you to stay at the controls when your machine starts bouncing up and down, or from side to side.

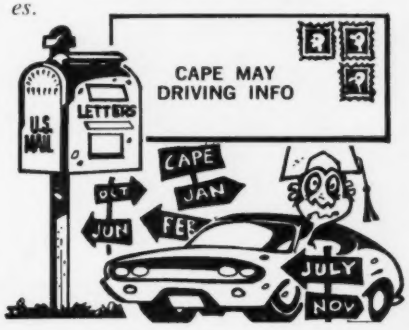
One of my friends was in too much of a hurry to buckle in, and bounced through the top of his roll cage when his car hit a good-sized bump and ran out from under him. He landed just right, though, so only the wind was knocked out of him. But the out-of-control car took on a large rock and lost. We couldn't even salvage the spare wheel or tire.

Now, when four-wheeling, my friend always buckles in—and even wears a helmet. Some people learn only from a swift kick, and Mother Nature often does the best job there.

Eagerly awaiting the next issue of DRIVER.

Ens J. S. Mac
NAS Pensacola FL 32508

For those who missed the June issue, A1C Fisher and the driver of an XKE crashed into a house at +90 mph, but walked away after unbuckling their seat belts and shoulder harnesses.



Please tell me where I can get information on the U.S. Coast Guard's Cape May driving school, as I would like to start a similar course at this base.

A1C Walter Richards
Box 5487
Myrtle Beach AFB SC 29577

There are two firsthand sources of information that you can contact. The first is: Mr. Ed Cook, Driver's Training, Coast Guard Station, Cape May, New Jersey 08204, and Mr. Kenneth F. Licht, Manager, School and College Department, National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611. Good luck with your plans.

On 8 Feb, this year, I sent a check for a 1-year subscription to DRIVER magazine to Superintendent of Documents, Government Printing Office, Washington, DC 20402.

My canceled check was returned; but, as yet, I haven't received any issues. Would you please check into this for me?

Sgt Steven Branch
P.O. Box 778
Castle AFB CA 95342

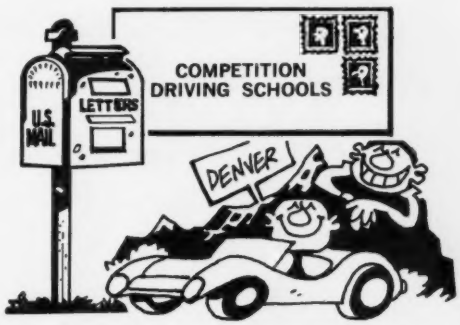
Several such complaints forwarded to GPO with request for suitable answer to DRIVER readers elicited the following response:

"Thank you for your inquiry.

"Frankly, the present demand for Government periodicals and publications is unprecedented and we are swamped with orders. We are handling all orders received as rapidly as possible.

"Your patience is appreciated, and shortly you will receive acknowledgement of subscription entry and/or available publications."

So, be patient. We hope your copies of DRIVER start coming soon.



I am interested in going to a competition driving school and would like information on length of courses, costs, and whether or not I would have to supply my own car.

Capt Robert Dunnigan, Jr.
201 Rimrock Road
Enid OK 73701

The Sports Car Club of America, P.O. Box 22476, Denver CO 80222, can supply you with a list of affiliated competition driving schools and related information.

continued from page 20

DOUBLE-CROSSED AT THE CROSSING

But don't let truck drivers fool you at a crossing. Most don't stop before tackling the tracks. Be cautious when you are behind a truck, and don't rely on the truck driver's actions to warn you of potential danger.

The real pro truck drivers, however, observe all the rules at a crossing; and they tell us that the car driver who tries to beat a big rig across the tracks is taking an unnecessary chance. The rig could easily hide an oncoming train.

TAKE TIME TO LIVE

Getting across railroad tracks is no hassle IF you take your time and STOP, LOOK and LISTEN. If you try to beat a train to the crossing, there's a good chance you'll lose everything. ●

The last thing some drivers ever see is the business end of a locomotive a second before it hits their car. You can avoid this short-lived situation by following the three basic rules for crossing railroad tracks: STOP, LOOK AND LISTEN.

ANSWER to "WHAT SHOULD YOU DO?"

(See back cover before reading)

Shift to neutral. This should always be your first reaction to a jammed throttle. Then brake, use your turn signals, and steer to a safe spot and stop. Also, turn off the ignition as soon as it is safe to do so, remembering that this locks the steering on some late models. Answer "B" is best.

It wouldn't be wise to jab at the accelerator pedal in an effort to unstick it when you're overtaking traffic. It may jam open at an even faster setting to increase your speed and the danger of a crash.

If you are certain that the steering will not be locked, you can kill the engine and get the added benefit of engine braking by turning off the ignition switch. However, if your car has power steering and brakes, you will have to use a lot more brake pedal pressure and a lot more effort to turn the steering wheel.

Generally speaking, you should never attempt to solve mechanical problems while driving. If anything goes wrong, get off the road and then have a look. ●

TIP of the MONTH

CRUISE CONTROL HAZARD

The following was submitted to the Wing FSO by a member of the 4950th Test Wing as a result of having the cruise control engaged on his automobile in cold, wet weather:

"Using a cruise control on slippery roadways, especially patchy types, can be dangerous. I was on an Interstate with cruise control on, going to Chicago. I was driving in a misty rain, and the weather was turning colder. As I crossed a small overpass, the rear end of the car went suddenly into a skid because the cruise control caused the rear wheels to spin as they lost traction on a small patch of ice or water.

"When a slippery spot is encountered, the rear wheels begin to lose traction and cause the car to slow down. This causes the cruise control to 'give it more gas,' and a sudden skid results.

"This potential hazard should be brought to the attention of all drivers who use cruise control, so they can watch for possible slick spots and disengage the cruise control before loss of control can occur." ●

(Contributed by Lt Col Edward D. Pitkus, FSO, Hq 4950th Test Wing (AFSC), Wright-Patterson AFB OH 45433)

ABOUT Miss DRIVER

(see page 15)

Lovely Cathy Madlin has graced DRIVER pages before, when she appeared as the September 1971 Miss DRIVER. Since then, Cathy has gone on to win even more modeling titles. In addition, Cathy pursues an active life as a still photographer, artist, video TV camera operator, and charm school instructor. ●

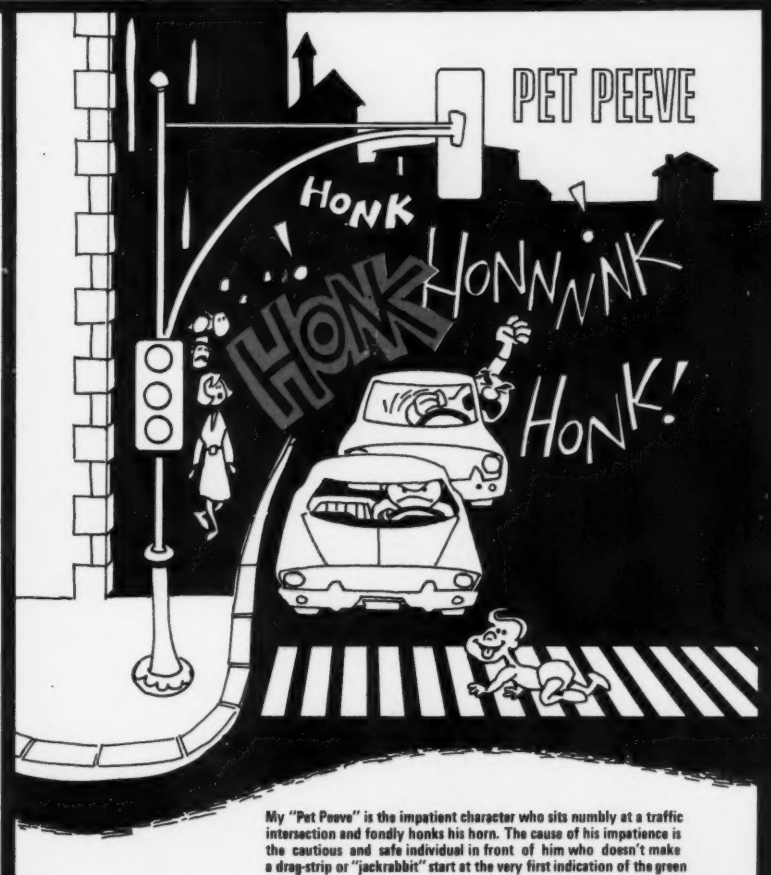
☆U.S. GOVERNMENT PRINTING OFFICE: 1973—789-423/1

Tuneup

"Either Detroit has come up with something new for '74, or that kid has done an amazing job of modification"

"You can open your eyes now.
You've just flunked the old 'Put your finger on the tip of your nose' test."

PET PEEVE



My "Pet Peeve" is the impatient character who sits numbly at a traffic intersection and fondly honks his horn. The cause of his impatience is the cautious and safe individual in front of him who doesn't make a drag-strip or "jackrabbit" start at the very first indication of the green light.

Thanks to:

MSgt Ronald B. Sergent
Det 6, 1931 Comm Gp/CC
APO Seattle 98748

We are sure everyone has a "Pet Peeve"
Won't you let us hear yours?

Write to: Editor, DRIVER Magazine, AFISC/SEDD,
Norton AFB CA 92409.

WHAT SHOULD YOU DO?

You're driving in the Nr 2 lane of a divided eight-lane highway, and rapidly catching up to the cars ahead, when you discover that your accelerator is stuck.

What should you do?

A. Jab at the throttle in an effort to jar it loose.

B. Shift to neutral, brake, signal, and steer to a safe spot and stop.

(See answer on page 28)